

REMARKS

I. Status of the Claims

Claims 1-27 and 42-67 are all the claims currently pending.

By this Amendment, claims 28-41 and 68-85 have been canceled without prejudice or disclaimer. Claims 1, 4, 5, 7, 12, 15, 18, 20, 25, 42, 43, 45, 47-51, 53-56, 58, 60-64, 66 and 67 have been amended. No new matter has been introduced by this Amendment.

II. Rejection Under 35 U.S.C. §112

Claims 5 and 39 have been rejected under 35 U.S.C. §112, second paragraph for being indefinite. Applicant has amended claim 5 to delete “at least,” in accordance with the Examiner’s suggestions. Thus, reconsideration and withdrawal of the objection to claim 5 is respectfully requested. Claim 39 has been canceled rendering the rejection moot.

III. Rejections Under 35 U.S.C. §102 and §103

Claims 1, 5, 8, 15, 19, 21, 28, 32, 34, 38-39 and 41 have been rejected under 35 U.S.C. §102(a) as being anticipated by Orito (U.S. Patent No. 6,072,912, hereafter Orito). Claims 3, 17, 30, 36, 42-44, 46, 49-50, 54-57, 59, 62-63, 67-69, 71-72, 74, 77-78 and 81-85 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Orito in view of Arimoto (U.S. Patent No. 5,371,613, hereafter Arimoto). Claims 4, 9-14, 18, 22-27, 31 and 37 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Orito in view of Arimoto and Kamisuwa (U.S. Patent No. 6,728,008 B1, hereafter Kamisuwa). Claims 2, 6, 16, 29, 33, 35 and 40 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Orito in view of Arimoto and Ohta (U.S. Patent No. 5,875,260, hereafter Ohta). Claims 7 and 20 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Orito in view of Arimoto, Kamisuwa and Sugiura (U.S. Patent No. 4,679,074, hereafter Sugiura). Claims 47, 51-52, 60, 64-65, 70, 75 and 79 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Orito in view of Arimoto and Sugiura. Finally, claims 45, 48, 53, 58, 61, 66, 73, 76 and 80 have been rejected under 35 U.S.C. §103(a) as being unpatentable over Orito in view of Arimoto and Taguchi (U.S. Patent No. 5,771,106, hereafter Taguchi). Accordingly, the Applicant has herein amended the claims to

further distinguish the present invention from the prior art of record and to expedite prosecution of the application.

More specifically, the Applicant has added “a shading correction unit” in claims 1, 15, 42 and 55 in order to more clearly show that the shading correction is performed in the image sensing apparatus. Additionally, the claims have been amended to more clearly show that the data on image sensing characteristic and information, which is output to the image processing apparatus or an external apparatus, is not related to shading correction. The shading correction unit is disclosed as “shading correction circuit 104” in Figs. 1, 7 and 17, for instance. Further, the Applicant has added “an image sensing unit” in claims 1 and 15. Support for these claim changes can be found in Figs. 1, 7 and 17 as “CCD 101,” for instance.

As amended, the present invention as described in claims 1 and 15 is directed to an image sensing apparatus that includes a shading correction unit that performs shading correction on image data output from the image sensing unit. Data on image sensing characteristics that is stored in the image sensing apparatus is transferred to the image processing (or external) apparatus. Shading correction is performed within the image sensing apparatus. Thus, data on image sensing characteristics is not data relating to shading correction.

Upon reception of the data on image sensing characteristics, the image processing (or external) apparatus generates image sensing characteristic correction data and corrects the image data (transferred from the image sensing apparatus) using the generated image sensing characteristic correction data. Accordingly, the image processing (or external) apparatus can correct image sensing characteristic of image data appropriately for an image sensing apparatus, which outputs the image data when various image sensing apparatuses are be connected to the image processing (or external) apparatus.

As amended, the present invention as described in claims 42 and 55 is directed to an image scanning unit instead of an image sensing unit. The image scanning unit scans a reference member and transfers to the image processing (or external) apparatus information corresponding to the image data obtained by scanning the reference member. Again, the shading correction is performed within the image sensing apparatus and, therefore, the information is not related to shading.

In addition to the advantages of the present invention in claims 1 and 15 as described above, the following advantage is obtained by the present invention described in claims 42 and 55. Namely, even when the characteristics (e.g., the quantity of light) of the light source changes with the lapse of time and data obtained by reading an original is affected by the change, (since the information transferred to the image processing (or external) apparatus corresponds to the image data obtained by scanning the reference member), it is possible to reflect the change of the characteristics of the light source on the information.

Orito, on the other hand, discloses the transfer of white level data (1WA1 to 8WA1684) and black level data (1BA1 to 8BA1684) from the image scanner 30 to the host computer 10 (column 9, lines 57-59). The host computer 10 averages values of the white level data and the black level data for each pixel, and corrects tone data of an original produced by the image scanner 30. The correction performed by the host computer 10 using the averages of white level data and the black level data corresponds to shading correction of the present invention. In other words, according to Orito, shading data obtained in the image scanner 30 is transferred to the host computer 10, and the host computer 10 performs shading correction. However, there is no description in Orito that shading correction is performed in the image scanner 30.

To that end, Orito does not disclose that shading correction is performed in the image scanner 30; data on the image sensing characteristics other than data related to shading correction data is transferred from the image sensor 30 to the host computer 10; image sensing characteristic correction data is generated in the host computer 10; and correction, other than shading correction, is performed on tone data of an original transferred from the image scanner 30 using the generated image sensing characteristic correction data. Accordingly, Applicant believes that claims 1, 15, 42 and 55 are distinguishable over Orito.

Furthermore, None of the cited prior art appears to overcome the deficiencies noted above in Orito to render obvious the claims of the present invention. For example, neither Orito nor Arimoto disclose performing shading correction in the image scanner 30, transfer information which is not on the shading characteristics, and perform correction, other than shading correction, in the host computer 10. Additionally, neither Orito nor Arimoto teach or suggest the transfer of information corresponding to image data obtained by scanning a reference member. Accordingly, even if one of ordinary skill in the art were to combine the teachings of

Orito and Arimoto, the combination still would not teach or suggest all the features as recited in claims 1, 15, 42 and 55. Similarly, Kamisuwa, Ohta, Sugiura and Taguchi do not appear to overcome the deficiencies noted above in Orito and Armoto to render obvious independent claims 1, 15, 42 and 55, as amended. Likewise, claims 2-14, 16-27, 43-54 and 56-67 are also believed to be distinguishable over Orito, Armoto, Kamisuwa, Ohta, Sugiura and Taguchi, individually or in combination, based on their respective dependencies on claims 1, 15, 42 and 55.

CONCLUSION

Based on the foregoing amendments and remarks, Applicant respectfully requests reconsideration and withdrawal of the rejection of claims and allowance of this application.

AUTHORIZATION

The Commissioner is hereby authorized to charge any additional fees which may be required for consideration of this Amendment to Deposit Account No. 13-4503, Order No. 1232-4677.

In the event that an extension of time is required, or which may be required in addition to that requested in a petition for an extension of time, the Commissioner is requested to grant a petition for that extension of time which is required to make this response timely and is hereby authorized to charge any fee for such an extension of time or credit any overpayment for an extension of time to Deposit Account No. 13-4503, Order No. 1232-4677.

Respectfully submitted,
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